REMARKS

Claims 1-14 and 16 were examined. No claims are amended. Claims 1-14 and 16 remain in the Application.

The Patent Office rejects claims 1-14 and 16 under 35 U.S.C. § 103(a). Reconsideration of the pending claims is respectfully requested in view of the following remarks.

A. 35 U.S.C. §103(a): Rejection of Claims 1-7, 9-12, 14 & 15

The Patent Office rejects claims 1-7, 9-12, 14 and 15 under 35 U.S.C. §103(a) as obvious over U.S. Patent Application No. 2003/0013233 of Shibata et al. (Shibata) in combination with U.S. Patent Application No. 2002/0031899 of Manor (Manor) in combination with U.S. Patent Application No. 2004/0014253 of Gupta et al. (Gupta). Applicants note claim 15 is canceled. Shibata is cited for disclosing a method of forming a chemically soluble coating on a plurality of exposed contacts, removing portions of the coating, sawing along a scribe street to form individual die, removing and sawing simultaneously, and removing the entire coating in a scribe street region, and exposing a plurality of contacts by removing an entire portion of coating above the contact. Gupta is cited for teaching a chemical etch results in dissolution. Manor is cited for a scribing method using a laser.

Independent claim 1 is not obvious over the cited references, because the cited references do not teach a method including forming a chemically soluble coating on a plurality of exposed contacts on a surface of a circuit substrate to a thickness greater than a distance of surface protrusion of a portion of the plurality of contacts, scribing through the substrate along scribe areas, and after scribing, removing a portion of the coating to expose the plurality of contacts. In Figures 1(a)-1(e), Shibata describes forming a resin layer 3 over contacts 2 and forming cut grooves 4 in resin 3 and into wafer 1 (see Fig 1(c)), then removing a portion of resin layer 3. Thus, in Shibata, scribing through the substrate 1 (Fig 1(f)) is done after etching resin 3 to expose contacts 2 (Fig 1(e)). Consequently, Shibata does not describe scribing through the substrate along scribe areas prior to removing a portion of resin layer 3 to expose contacts 2 (see Fig 1(e)), and then sawing through wafer 1 (see Fig 1(f)). Also, there is no motivation in Shibata to remove resin 3 after dicing, since Shibata teaches thinning the wafer (e.g., grinding from Fig 1(c)

to Fig 1(d); and etching/grinding resin 3 from Fig 1(d) to Fig 1(e)), prior to dicing (see paragraphs 44 and 36-37). Thus, there is no motivation in the cited art to do the back grinding or removing of resin 3 on individual die. Gupta and Manor similarly do not provide any teaching or motivation for the method of claim 1.

Claims 2-8 depend from claim 1 and therefore contain all the limitations of that claim. For the reasons stated with respect to claim 1, claims 2-8 are not obvious over the cited references.

Independent claim 9 is not obvious over the cited references, because the references do not teach or provide any motivation for a method comprising forming a circuit structure, forming a coating comprising a chemically soluble material on exposed contacts on the substrate, scribing through the substrate along the side scribe street, and after scribing, removing the coating from an area on the contacts. As noted above, the reference teaching a scribing process is Shibata. Shibata, however, teaches only exposing contacts 2 (see Fig 1(e)), then sawing through wafer 1 (see Fig 1(f)). Shibata does not teach scribing through a substrate and then removing a coating from an area on the contacts. Similarly, there is no motivation to scribe through the substrate prior to removing as claimed, as noted above for claim 1. Gupta and Manor similarly do not provide any teaching or motivation for the method of claim 9.

Claims 10-13 depend from claim 9 and therefore contain all the limitations of that claim. For at least the reason stated with respect to claim 9, claims 10-13 are not obvious over the cited references.

Claim 14 is not obvious over the cited references, because the cited references do not teach or provide any motivation for a method comprising coating a surface of a circuit substrate with a chemically soluble material; scribing the surface of the substrate along scribe areas; removing the coating to expose the plurality of contacts by a dissolution process; and sawing the substrate in the scribe areas, wherein sawing and removing the coating are done simultaneously. Shibata teaches forming resin layer 3 on a substrate, forming cut grooves 4 through the resin layer 3, grinding a back side of a substrate (Figure 1(d)), and removing a portion of the resin layer 3 (Figure 1(e)), then sawing the structure (Figure 1(f)). Shibata does not teach sawing and removing the coating to expose contacts simultaneously. The scribing in Shibata is taught prior to exposing contacts 2 (see paragraphs 32, 44 and 34). In fact, Shibata forms the cut grooves in

the resin layer to avoid warp due to a difference in thermal expansion/contraction between a semiconductor substrate on a resin layer in a process involving grinding a back surface of a semiconductor substrate to reduce chip thickness (see Shibata, paragraph 13). Also, the sawing is done after the removing as explained above for claim 1. Moreover, there is no motivation to saw during removing to expose contacts 2, as explained for claim 1, and there is no motivation to do scribing during exposing of contacts 2, as Shibata is concerned with thermal expansion/contraction. Gupta and Manor similarly do not teach or provide any motivation for the method of claim 14.

Applicants respectfully request that the Patent Office withdraw the rejection to claims 1-7, 9-12, 14 and 15 under 35 U.S.C. §103(a).

Next, for claim 3, Applicants traverse that a thickness between 5-35 microns would be obvious and request the Patent Office cite a reference in support of that position in accordance with MPEP § 2144.03. Specifically, Shibata teaches electrodes 2 having a height of 50 microns (see paragraph 0028).

B. 35 U.S.C. §103(a): Rejection of Claims 8, 13 & 16

The Patent Office rejects claims 8, 13 and 16 under 35 U.S.C. §103(a) as obvious over Shibata, Gupta and Manor as applied to claims 1, 9 and 15 and further in combination with JP2000630747 of Fuji (Fuji). Fuji is cited for disclosing an epoxy flux. Applicants note that Fuji teaches adding an epoxy flux during soldering. It is not at all clear that an epoxy flux can be substituted for resin layer 3 of Shibata since the resin layer in Shibata is directed at reinforcing a wafer so that the wafer may be thin. See Shibata, paragraph 0013. Regardless, the teachings of Fuji do not cure the defects of the other references, specifically with regard to scribing through the substrate prior to removing a portion of a coating to expose contacts as described in claims 1 and 9 or sawing and removing a coating to expose contacts simultaneously as described in claim 14.

Applicants respectfully request the Patent Office withdraw the rejection to claims 8, 13 and 16 under 35 U.S.C. §103(a).

CONCLUSION

In view of the foregoing, it is believed that all claims now pending patentably define the subject invention over the prior art of record and are in condition for allowance, and such action is earnestly solicited at the earliest possible date. If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2666 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17, particularly, extension of time fees. If a telephone interview would expedite the prosecution of this Application, the Examiner is invited to contact the undersigned at (310) 207-3800.

Respectfully submitted,

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Amber D. Saunders 4/19/06
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